

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

APPLIED PREDICTIVE TECHNOLOGIES, INC.,)	
)	
)	
Plaintiff,)	
)	
v.)	C.A. No. 18-963-CFC
)	
MARKETDIAL, INC. and JOHN M. STODDARD,)	
)	
)	
Defendants.)	

**PLAINTIFF APPLIED PREDICTIVE TECHNOLOGIES, INC.'S
ANSWERING BRIEF IN OPPOSITION TO DEFENDANT MARKETDIAL, INC.'S
MOTION TO DISMISS COUNT III UNDER FED. R. CIV. P. 12(b)(6)
FOR ALLEGED UNPATENTABILITY UNDER 35 U.S.C. § 101**

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I. NATURE AND STAGE OF PROCEEDINGS

On September 18, 2018, Plaintiff Applied Predictive Technologies, Inc. (“APT”) filed its First Amended Complaint (“FAC”) against Defendants MarketDial, Inc. (“MarketDial”) and John M. Stoddard (“Stoddard”) (collectively, “Defendants”) alleging infringement of U.S. Patent No. 8,571,916 (“the ’916 Patent”).¹ D.I. 23. On October 5, 2018, Defendants moved to dismiss Count III under 35 U.S.C. § 101. D.I. 33. MarketDial’s motion should be denied.

II. SUMMARY OF THE ARGUMENT

The ’916 Patent claims technological improvements in optimizing the functionality of predictive analytics software used to analyze large data sets, including for use in initiative testing, analogous to other technologies courts have found eligible for patent protection. The ’916 Patent solves a computer-centric problem of inconsistent data in predictive analytics software by implementing a specific process for configuring optimal parameter settings that minimize the effects of such inconsistent data, and increases accuracy of predictive analytics systems. The ’916 Patent offers a novel and concrete way to automatically identify and filter out inconsistent data by determining optimal parameter settings for predictive analytics systems by performing a virtual test on virtual test sites using a variation of each parameter setting and determining the noise value between the performance data of the virtual test sites and the performance data of control test sites.

The ’916 Patent is also patent eligible under step two of *Alice* because it involves far more than well-understood, routine, and conventional technology. This is supported by allegations in the FAC explaining the technological improvements disclosed in the intrinsic

¹ Defendants assert at footnote 1 of their brief that the August 31, 2018 joint stipulation extending APT’s time to respond to Defendants’ Motions to Dismiss did not extend its time to amend without leave under Fed. R. Civ. P. 15(a)(1). APT respectfully disagrees but, to the extent the time was not extended, (a) Defendants’ motions to dismiss the FAC moots the issue and (b) if not mooted, APT respectfully requests leave to file the FAC pursuant to Fed. R. Civ. P. 15(a)(2), which provides that the “court should freely give leave when justice so requires.”

record which will be further supported by experts and the inventors, as informed by claim construction. Any argument to the contrary cannot support a dismissal at the pleading stage.

Defendants' arguments, at best, dispute the allegations of the FAC and specification raising disputed issues of material fact, which, according to *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018), and *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121 (Fed. Cir. 2018), compel denial of this Motion. Indeed, Defendants did not so much as cite, let alone distinguish, these recent Federal Circuit precedential decisions.

III. STATEMENT OF FACTS

The '916 Patent is directed to the field of predictive analytics, which analyzes present and historical data to predict, among other things, the likely outcome of potential new business initiatives. The invention improves upon prior art analytical tests by providing a novel means of reducing inconsistent data that distorts the results, thus improving the accuracy and utility of such tests. '916 Pat., 1:64-2:3. The inventors developed these innovations in predictive analytics while working for plaintiff APT, a global leader in the business analytics software industry. FAC ¶19. One application of predictive analytics is in the field of business initiative testing. Specifically, retailers want to be able to test business initiatives, such as changing product prices, new marketing campaigns, changing the location or allocation of floor or shelf space, testing new products, adding or reducing staff, remodeling older stores. '916 Pat., 1:25-42. The patent provides an example of a business selecting an initiative to be applied across thirty stores, including, a change in store layouts, offering different products and/or services, different marketing campaigns (e.g., advertising, etc.), which may be implemented over a six month test period. '916 Pat., 7:40-57. Historically, retailers used business instinct and/or anecdotal evidence to assess the success of different potential initiatives to decide whether to implement the initiatives at their other business locations. '916 Pat., 1:41-44. However, as the amount of

data collected increased dramatically, intuitive methods failed to produce reliable results. '916 Pat., 1:66-2:10. The exponential growth in data increased the problems relating to the reliability of these large data sets. *Id.* Because the data is too complex for even conventional software, filtering inconsistent data in large data sets could not be performed by a human. FAC ¶39.

The way in which a predictive analysis is set up, including the setting of parameters, can affect the inconsistency of the data. '916 Pat., 1:59-64, 17:16-32. Prior art systems relied heavily on human intuition to set these parameters, which resulted in businesses failing to recognize or properly filter inconsistent data, such that they were less able to measure the effectiveness of initiatives being tested. '916 Pat., 1:61-2:10. Thus, at the time the '916 Patent was filed in 2006, a technological solution was needed to automate and optimize the selection of these parameters and improve business initiative testing that processed the massive amount of performance data (e.g., sales or pricing data) together with numerous other data parameters, using a system that could also recognize and filter inconsistent data,² so that retailers could improve their predictive analyses. '916 Pat., 17:33-37. As the Background explains:

As a result, retailers may not *recognize and filter inconsistent data*, and therefore be less able to measure the impact of their initiatives. Accordingly, there is a need for a system and method that *automatically identifies one or more analytical parameters that filter out the most inconsistent data* to maximize a retailer's ability to analyze the results of an initiative test. Using more consistent data allows retailers to better identify those initiatives to extend to certain locations that will provide the most anticipated profit gains.

'916 Pat., 2:1-10 (emphasis added); FAC ¶29.

The '916 Patent solves these problems inherent in large data sets created for and by predictive analytics software, which qualitatively and quantitatively predict future outcomes and

² Such other data parameters in the analysis may include, e.g., store size, locations, sale data, types of products offered, location and distance of competing merchants, age of the business location, weather data during the test period, population, and demographic data. '916 Pat., 8:30-45.

results based on historical data and sampling test data, which may include tens of thousands of data points, or more, by selecting parameters to filter out noise. *See, e.g.*, FAC ¶39; '916 Pat., 1:45-59. As the Detailed Description explains:

Certain aspects of the present invention enable server 130 to ***identify and set those model parameters that will best filter out noise*** associated with data related to the stores where the initiative was applied in order to produce more accurate results regarding the impact of the initiative. ***Noise may be a quantified measurement of inconsistent performance data for sites used in the analysis performed by the model.*** Aspects of the present invention create a simulation environment where the ***model performs a number of virtual initiative tests (e.g., initiative tests that have not actually been implemented in a business location) using different parameters. Based on the results of the virtual tests, server 130 may identify parameter settings that best filter noise from the results. Those parameter settings are then automatically selected for a particular test type as default settings that are subsequently used in performing actual initiative tests for predicting the performance of selected business locations based on the proposed initiative.***

'916 Pat., 17:33-49 (emphasis added); FAC ¶31. This solution is reflected in the claims. For example, claims 1 and 18, and their dependent claims, claim methods and systems that provide a technological solution to recognizing and filtering inconsistent data in large data sets by determining the optimal system parameters that best recognize and filter out such data. Claim 1, which is the only focus of Defendants' Motion³, claims a tangible invention that is clearly a technological improvement over the prior art (letters added in brackets for ease of reference):

1. A method for determining optimal parameter settings for business initiative testing software used for testing initiatives for business locations included in a business network, comprising:
 - [A] identifying, by a computer, a business initiative testing model having a set of parameter settings;
 - [B] selecting a first parameter setting set for performing the virtual test, the first parameter setting set including a set of selected parameter setting options each respectively corresponding to one of the parameter settings for the business initiative testing model;
 - [C] performing, by a computer, a virtual test on a set of virtual test sites, each virtual test site reflecting a selected business location in the business network, wherein each

³ Notably, Defendants provide no analysis to establish that Claim 1 is representative of other claims, and APT disputes this.

virtual test is a simulated business initiative test performed on test sites where no actual initiative test has been implemented at those test sites, and wherein the virtual test is performed on the virtual test sites using a variation of each parameter setting;

- [D] determining, by a computer, actual performance data associated with the set of virtual test sites;
- [E] determining, by a computer, actual performance data associated with a set of control group sites reflecting second selected business locations in the business network using the tested parameter settings;
- [F] determining a noise value for the first parameter setting set, the noise value reflecting an inconsistency between performance data associated, with the set of virtual test sites and performance data associated with the set of control group sites reflecting second selected business locations in the business network using the tested parameter settings;
- [G] determining, by a computer, a set of optimal parameter settings for the business initiative testing model based on results from the virtual test whereby the optimal parameter settings best minimize noise from the results; and
- [H] configuring, by a computer, the business initiative testing model using the optimal parameter settings to test a business initiative for application in the business network.

This solution is accomplished by, among other things, performing virtual tests on a set of virtual test sites using a parameter setting set of selected parameter setting options and determining the inconsistency between the performance data associated with the virtual test sites and the performance data associated with a set of control group sites. By modifying the selected parameter settings and performing a virtual test, the optimal system parameters can be quickly and efficiently ascertained by determining which selected parameter settings best minimize the inconsistency between the performance data associated with the virtual test sites and the performance data associated with a set of control group sites. FAC, ¶27; '916 Pat., 17:33-43; 18:21-24. This system provides the ultimate benefit of recognizing and filtering out the most inconsistent data to maximize a retailer's ability to design an initiative test that will best predict the performance of a business initiatives across locations. '916 Pat., 17:43-49.

The '916 Patent also includes 17 dependent claims building on Claim 1, 14 dependent claims building on Claim 18, and two additional independent claims that claim further

technological innovations and improvements. For example, some of the dependent claims (Claim 3, 4, 19, 20, 21) include systems that configure the computer to perform iterative testing that increases the accuracy of the testing method claimed in the independent claims. Elements of claims 3, 4, 19, 20, and 21 are shown in Figure 19 of the '916 Patent.

MarketDial itself recognizes that “Big data can be intimidating,” and that “Perfect data and a robust data pipeline is the lifeblood of [its] business.”⁴ Yet, MarketDial attempts to mischaracterize the inventions of the '916 Patent as simply “using known mathematical techniques to optimize business models.” D.I. 33 at 1. The solution to the problem of inaccurate data requires sophisticated predictive analytical modeling systems, not just known “math,” to ensure “perfect data.” The '916 Patent provides just such a solution.

IV. LEGAL STANDARD

35 U.S.C. §101 broadly allows “any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof” to be patented. Issued patents are presumed valid. 35 U.S.C. § 282. “At the motion to dismiss stage a patent claim can be found directed towards patent-ineligible subject matter if the only plausible reading of the patent must be that there is clear and convincing evidence of ineligibility.” *Tuxis Techs., LLC v. Amazon.com, Inc.*, No. 13-1771-RGA, 2014 WL 4382446, at *2 (D. Del. Sept. 3, 2014). “Whether a claim recites patent eligible subject matter is a question of law which may contain disputes over underlying facts,” and such factual disputes require denial of a motion to dismiss. *Berkheimer*, 881 F.3d at 1368, 1370.

In *Alice* and *Mayo*, the Supreme Court laid out a two-step framework for assessing eligibility. Step one asks whether the claims are directed to a judicial exception, such as an

⁴ MarketDial Homepage, <https://marketdial.com/> and https://hire.withgoogle.com/public/jobs/marketdialcom/view/P_AAAAAADAABiLZ-aUkt0FPV (last accessed October 18, 2018).

abstract idea. *Alice Corp. Pty v. CLS Bank Int'l*, 134 S.Ct. 2347, 2355 (2014). If not, the inquiry stops there and the claims are eligible. *Id.* at 2357. If the claims are directed to an abstract idea, step two determines whether the claims recite an “inventive concept.” *Id.* at 2355. Both steps are informed by the specification. *See Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1299 (Fed. Cir. 2016).

In analyzing step one, courts examine the patent’s “‘claimed advance’ to determine whether the claims are directed to an abstract idea.” *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018). For software, this “often turns on whether the claims focus on ‘the specific asserted improvement in computer capabilities’” or “on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* The claims must be “considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016). In conducting the step one analysis, courts should not “oversimplif[y]” key inventive concepts or “downplay” an invention’s benefits. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337-38 (Fed. Cir. 2016).

The Federal Circuit has held that claims “focused on various improvements of systems” are eligible. *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 882 F.3d 1356, 1362 (Fed. Cir. 2018) (holding that claims that “improve[d] the efficiency of using the electronic device” and improved “the speed of a user’s navigation” are eligible at step 1). “[S]oftware-based innovations can make ‘nonabstract improvements to computer technology’ and be deemed patent-eligible subject matter at step 1.” *Finjan*, 879 F.3d at 1304.

Step two considers “the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’

into a patent eligible application.” *Berkheimer*, 881 F.3d at 1367. A claim recites an inventive concept “when the claim limitations ‘involve more than performance of well-understood, routine, [and] conventional activities previously known to the industry.’” *Id.* Whether an element or combination of elements “is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact” that “must be proven by clear and convincing evidence.” *Id.* at 1368; *Aatrix*, 882 F.3d at 1128. “The inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art.” *BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349-50 (Fed. Cir. 2016).

V. ARGUMENT

Defendants cannot meet their heavy burden of proving that the ’916 Patent is invalid. Here, the claims are not directed to an abstract idea - instead they accomplish a specific, practical, and useful technological improvement to existing predictive analytics software processes by automatically determining optimal parameter settings that minimize inconsistent data. ’916 Pat., 2:1-8, 17:33-49, 18:21-24; FAC ¶¶ 27, 30, 32, 34. MarketDial has failed to demonstrate that the elements of each claim of the ’916 Patent both individually and as an ordered combination, do not transform the nature of the claim into a patent-eligible application.

Defendants seek to turn the law on its head by arguing that the Court should ignore the allegations of the FAC and the intrinsic record of the ’916 Patent on this Motion and have the Court accept their uncorroborated attorney argument to rule that the claims are patent-ineligible under § 101. Even if Defendants had come forward with evidence—which they did not—dismissal would be inappropriate given the contrary facts in the FAC and the patent itself. *Aatrix*, 882 F.3d at 1126-27, 1128-30; *Berkheimer*, 881 F.3d at 1368.

A. **Step 1: The Claims of the ’916 Patent are not Directed to an Abstract Idea.**

Defendants’ motion fails at Step 1 of the *Alice* analysis because the ’916 Patent is

directed at a tangible improvement in the performance of computer systems using predictive analytics for initiative testing. Claim 1, for example, is directed to “non-abstract improvement[s]” in predictive analytics software used in computer systems and thus, is patent-eligible. *See Finjan*, 879 F.3d at 1305. Claim 1 teaches a method, and Claim 18 a system, that recognizes and filters inconsistent data from large data sets by determining optimal system parameter settings, and then configures the computer system to perform an analysis based on those parameters. It claims particular steps that include performing a virtual test on test sites where no actual initiative test has been performed. Because of the amounts of data involved, conventional software cannot typically process the data, thereby making it infeasible for a human to modify the system parameters and perform a virtual test. By automatically modifying selected parameter settings and performing a virtual test by a computer as taught by the claims, the optimal system parameters can be quickly and efficiently ascertained to configure the business initiative testing model. This provides the ultimate benefit of recognizing and filtering out the most inconsistent data to maximize a retailer’s ability to perform a business initiative test that will produce more accurate predictions. FAC, ¶30; ’916 Pat., 17:33-49, 21:28-30, 22:26-28.

1. The ’916 Patent is not “Directed to an Abstract Idea of Mathematical Optimization in a Business Environment”

Defendants’ attempt to characterize the invention as “directed to an abstract idea of mathematical optimization in a business environment” fails because it ignores the actual claimed invention. *See* D.I. 33 at 12. The claims are directed to methods and systems of filtering inconsistent data by determining optimal system parameters to be used in predictive analytics software. The invention disclosed in the claims is both explicitly and inherently rooted in improvements in computer technology and does not relate to a fundamental concept of economics or mathematics, as MarketDial alleges. *Id.*

At *Alice* step 1, “it is not enough to merely identify a patent-ineligible concept underlying the claim; we must determine whether that patent-ineligible concept is what the claim is ‘directed to.’” *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1050 (Fed. Cir. 2016). And that inquiry requires the claims be read as a whole. *See Alice*, 134 S.Ct. at 2355 n.3. At the time of the inventions, conventional predictive analytics software did not adequately address the big data problem of recognizing and filtering inconsistent data. FAC, ¶29; ’916 Pat., 2:1-1.

The claimed inventions, as recited for example in Claims 1 and 18, solve this technological problem by automatically identifying parameters that filter inconsistent data to provide more accurate computer analysis of initiative testing. FAC, ¶29. For example, Claim 18 recites a system that applies a specific, structured order of steps to determine optimal system parameters for business initiative testing software that solves a specifically-identified problem in the prior art: a need for a system and method that automatically identifies parameters that filter out the most inconsistent data to maximize the validity of the results of an initiative test. ’916 Pat., 2:6-8. While the steps set forth in claim elements in A - H should not be oversimplified, the claim provides a structured process that includes steps for using a computer to set up virtual tests according to a set of rules [A and B], to analyze parameter settings according to the specified steps [C], determine the optimal parameter settings [D. E. F, and G], and configure a business imitative test using the optimal parameter settings [H]. ’916 Patent, 25:59-26:32; 27:55-28:26.

This structured process of the ’916 is analogous to the rules in *McRO*.⁵ In *McRO*, as here, the claims described a computer method that provided for “the automatic use of rules of a particular type” to solve a known problem in a manner substantively different from previously employed processes. 837 F.3d at 1314. The specific virtual test process of the ’916 Patent, as the

⁵ The Federal Circuit has instructed courts to “examine earlier cases in which a similar or parallel descriptive nature can be seen.” *Amdocs*, 841 F.3d at 1294.

rules in *McRO*, may be “embodied in computer software that is processed by general-purpose computers,” but defendant cannot show “that the process previously used . . . is the same as the process required by the claims.” *Id.* As with business initiative testing prior to the ’916 Patent, *McRO* observed that animators had previously “been driven by subjective determinations.” *Id.*

This case is also similar to *Vendavo, Inc. v. Price F(X) AG*, where the court cited *McRO* in denying a motion to dismiss where the plaintiff had alleged that the computerized process described in the claims substantively differs from previously employed processes:

Nevertheless, at least at this juncture a determination that one or more of the claims addressed by the motion fail under Section 101 remains premature. *McRO* teaches there is a distinction using a “computer as a tool to automate conventional activity,” and “the automatic use of rules of a particular type.” 837 F.3d at 1314. Where the computerized process described in the claims substantively differs from previously employed processes—beyond the mere fact of computerization—it may be patent eligible. See *id.* at 1314 (“While the rules are embodied in computer software that is processed by general-purpose computers, Defendants provided no evidence that the process previously used by animators is the same as the process required by the claims.”) Here, the evidence and arguments are insufficient to permit a dispositive finding as to whether the methods described in any or all of the claims presently at issue go “beyond merely organizing [existing] information into a new form or carrying out a fundamental economic practice.” *Id.* at 1315 (citation omitted). Accordingly, the motion to dismiss must be denied.

Vendavo, Inc. v. Price F(X) AG, No. 17-cv-06930-RS, Order (N.D. Cal. Oct. 22, 2018), Ex. 1.

2. MarketDial Impermissibly Oversimplifies the ’916 Patent

Defendants also oversimplify the claims to support their ineligibility arguments. But, the Federal Circuit has “cautioned that courts ‘must be careful to avoid oversimplifying the claims’ by looking at them generally and failing to account for the specific requirements of the claims.” *McRO*, 837 F.3d at 1313. Rather, “the claims are considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter.” *Id.* at 1312. Defendants’ attempt to “boil down” claim 1 (D.I. 33 at 10), renders their step 1 deeply flawed. Defendants mischaracterize the claims as simply “performing mathematical calculations to find

the parameter settings with the lowest ‘noise’ value.” *Id.* To the contrary, the claims recite methods and systems that provide a specific process for determining the inconsistencies between the virtual test and control sites, reducing inconsistencies and increasing the accuracy of the predictive test. Indeed, the advances described in the specification and incorporated, for example, in Claims 1 and 18 (*e.g.*, a system that performs a virtual test; determines a noise value for the first parameter setting set; and determines a set of optimal parameter settings) are absent from the purported “abstract steps” to which Defendants allege the claims “boil down.” *Id.* at 10.

Defendants rely on their oversimplified characterization to suggest that a human could perform the steps of Claim 1. D.I. 33 at 10. But this too is incorrect. A simple analysis demonstrates that the steps of Claim 1 could never be performed by a human. A human would need to use complex hardware and specialized software to perform the steps recited in the claims, without which the calculation of even a single iteration of the claimed method of Claim 1 would take more than a lifetime. In one example recited in the specification, a server may select 50 virtual test sites from an available pool of 1000 sites. ’916 Pat., 20:26-28. A further exemplary data set includes a set of four parameter settings, each setting having four respective parameter setting options, resulting in 256 possible parameter setting combinations. ’916 Pat., 20:2-8. In a one-month test period, this would result in the analysis of 12,800 months’ worth of performance data. FAC ¶ 39. In *McRO*, the Federal Circuit explained that the claimed computer is employed to “perform a distinct process to automate a task previously performed by humans” but went “beyond merely organizing [existing] information into a new form or carrying out a fundamental economic process.” *Id.* at 1314–15 (internal quotation marks omitted). Instead, it “use[d] a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results: a sequence of synchronized, animated

characters.” *Id.* at 1315. Here too, the claims cannot reasonably be performed by a human and go beyond merely applying an algorithm to carry out a fundamental economic process. FAC ¶39. These deficiencies reinforce that Claims 1 and 18 are not directed to a longstanding method of organizing human activity or commercial practice like other claims found patent-ineligible. *See, e.g., BASCOM*, 827 F.3d 1341 at 1348 (collecting cases). That Defendants attempt, using hindsight, “simplify the invention enough to find a human counterpart (or argue that a human could somehow perform the steps of the method) does not suffice to make the concept abstract,” because at some level all inventions “embody, use, reflect, rest upon, or apply” abstract ideas. *SRI Int’l, Inc. v. Cisco Sys., Inc.*, 179 F. Supp. 3d 339, 353 (D. Del. 2016). Claims 1 and 18 are “more complex than ‘merely recit[ing] the performance of some business practice . . . along with the requirement to perform it on the Internet.’” *Id.* at 353–54. Instead, the ’916 Patent recites a solution necessarily rooted in computers to overcome problems to predictive analytics software.

3. Defendants’ Cited Cases are Distinguishable.

The asserted claims are not similar to the ineligible claim in *OIP Techs., Inc. v. Amazon.com, Inc.*, which was “directed to the concept of offer-based price optimization,” and “broadly recites a ‘method of pricing a product for sale.’” 788 F.3d 1359, 1362 (Fed. Cir. 2015). The Court found “‘offer based pricing’ to be similar to other ‘fundamental economic concepts’ found to be abstract ideas.” *Id.* Here, in contrast, the ’916 Patent claims are not directed to any “fundamental economic concepts,” but rather the optimization of predictive analytics software by determining optimal parameter settings for the software itself. Defendants admit as much. D.I. 33 at 11 (“the ’916 patent claims are directed to testing different parameters to identify the parameters that produced the least noise.”). Yet, Defendants fail to appreciate that because the claims are directed to testing the different parameter settings of the predictive analytics software itself, the ’916 Patent provides a specific solution to a technological problem that is wholly

unrelated to any underlying economic concept, such as the offer-based pricing concept claimed in *OIP*. The instant claims do not limit the use or the determination of the optimal parameter settings to any particular industry, as in *OIP*. Nor are the computer functions in the claims well-understood, routine, or conventional.

Similarly, Claims 1 and 18 are distinguishable from the ineligible claims in *PurePredictive* which were “directed to the abstract concept of the manipulation of mathematical functions and make use of computers only as tools, rather than provide a specific improvement on a computer-related technology.” *PurePredictive, Inc. v. H2O.AI, Inc.*, 2017 WL 3721480, at *1 (N.D. Cal. Aug. 29, 2017). Indeed, the claims in *PurePredictive* did not so much as recite *any* form of computer implementation of the claimed method, such that purely human activity could have found to be infringing. *Id.* The court held that the claims were “directed to a mental process and the abstract concept of using mathematical algorithms to perform predictive analytics. The [claimed] method is directed towards collecting and analyzing information.” *Id.* at *5. By contrast here, Claims 1 and 18 of the ’916 Patent are directed to an improvement in computer technology and do not recite mere mathematical algorithms. Not only is the use of a computer necessary to perform the unique combination of steps in Claims 1 and 18, those claims also recite a sophisticated method of determining optimal system parameters including a virtual test on test sites where no actual initiative test has been implemented. Indeed, while rudimentary predictive analytics may in some cases be performed by a human, it is the implementation of predictive analytics on computers that created the need to automatically identify the system parameters of predictive analytics software to maximize a retailer’s ability to successfully perform and analyze the results of an initiative test. ’916 Pat., 2:4-8. And, unlike the “brute force, trial-and-error approach” in *PurePredictive*, the invention recited in Claim 1 recites a

specific ordered combination of steps to achieve a specific result. See discussion at 17-19.

Instead, this case is more like *Enfish*, where the Federal Circuit held that claims directed to a “self-referential table for a computer database” were eligible for patent protection because they described a “specific type of data structure designed to improve the way a computer stores and retrieves data in memory.” Thus, because the claims in *Enfish* were directed to a specific *improvement* in computer technology, the Federal Circuit found that they were not directed to an abstract idea. Similarly, the claims of the ’916 Patent are directed to an improvement in computers and/or software, *e.g.*, reducing inconsistent data. It is not simply an “abstract mathematical formula.” *Enfish*, 822 F.3d at 1338. Indeed, claims 1 and 18 recite specific steps—performing a virtual test on the set of virtual test sites using a variation of each parameter setting—that accomplish the desired result. Thus, Claim 1 is not directed to an abstract idea.

B. Step 2: The ’916 Patent Claims Inventive Concepts.

Even if the Court nonetheless were to conclude that the claims are directed to an abstract idea, the patent is still patent-eligible because it “involve[s] more than performance of well-understood, routine, [and] conventional activities previously known to the industry.” *Berkheimer*, 881 F.3d at 1367. As alleged in the FAC and described in the ’916 Patent, the individual elements of claims 1 and 18 (such as “performing ... a virtual test on a set of virtual test sites”) and the ordered combination of the elements were not well-understood, routine, or conventional in the field of predictive analytics software, or any other field, at the time the ’916 Patent was filed. FAC, ¶¶28, 37, 40, 43. At a minimum, there is a factual dispute precluding dismissal. Even if Defendants had presented contrary evidence, which they did not, dismissal would be inappropriate given facts in the FAC and the patent. *Berkheimer*, 881 F.3d at 1368.

1. The Individual Claim Elements of Claim 1 Provide the Unconventional and Inventive Solution to Satisfy *Alice* Step 2.

As in *Aatrix*, the question of whether Claim 1 recites an inventive concept “cannot be

answered adversely to [APT] based on the sources properly considered on a motion to dismiss, such as the complaint, the patent, and materials subject to judicial notice.” *Aatrix*, 882 F.3d at 1128. Here, at a minimum, the element of “performing ... a virtual test on a set of virtual test sites... and wherein the virtual test is performed on the virtual test sites using a variation of each parameter setting” is an inventive concept. By performing a virtual test, the optimal system parameters can be quickly and efficiently ascertained by determining which selected parameter settings best minimize the inconsistency between the performance data associated with the virtual test sites and the performance data associated with a set of control group sites, something that prior predictive analytics software was not able to do. ’916 Pat., 2:1-11. Nothing in the specification describes this element of Claim 1 as well-understood, routine, or conventional, because it was not. *See* FAC, ¶¶28, 37, 40, 43. Instead, the specification describes that prior systems defined the parameters for the analysis in a manner that *seemed* intuitive, but lacked empirical evidence that the parameters were in fact optimized for isolating the impact of an initiative. ’916 Pat., 1:64-2:1. The claims solve this problem by performing a virtual test on test sites where no actual initiative test has been implemented, thus enabling the optimal parameter settings to be determined prior to any initiative testing. It is precisely this type of “additional limitation” that transforms the claim into patent-eligible subject matter.

Defendants nonetheless allege that Claim 1 does not disclose an inventive concept because determining the noise value for each parameter setting can allegedly be performed using routine, well-known mathematical relationships and calculations. D.I. 33 at 14-15. The excerpts from the patent that Defendants cite, however, are merely disclaimers that other noise calculation algorithms may be used. The issue of whether the noise calculation algorithms are routine or well-known thus remains a fact issue not suitable for disposition on a Rule 12(b)(6) motion.

And in any case, even if Defendants could show one individual step of the method of Claim 1 implemented a routine or well-known algorithm, that would not render the entirety of Claim 1 routine or well-known. As noted above, the element of “performing ... a virtual test on a set of virtual test sites... and wherein the virtual test is performed on the virtual test sites using a variation of each parameter setting” is another inventive concept. Defendants do not allege that this element of Claims 1 and 18 is routine or well-known and have cited nothing in the specification, the claims, or the prosecution history that would support such a finding.

Defendants further argue that the invention does not improve operations on a computer because it can be implemented on any computer. D.I. 33, at 2. Defendants ignore that the computer has to be programmed to perform the inventive steps and the specification expressly provides that it “be implemented by a suitable combination of hardware, software, and/or firmware.” ’916 Pat, 5:16-19. And, contrary to Defendants’ argument that Figure 1 shows no need for innovative computer hardware (D.I. 33, p. 8), Figure 1 shows a segmentation engine 137 and a model processing engine 138, and neither are available in an off-the-shelf computer.

2. The Ordered Combination of Claim Elements Is Inventive.

The elements of Claim 1, when viewed as an ordered combination, recite an inventive method of determining optimal parameter settings for business initiative testing software. For example, the ordered combination of steps—including [c] “performing ... a virtual test on a set of virtual test sites... and wherein the virtual test is performed on the virtual test sites using a variation of each parameter setting,” [f] “determining a noise value for the first parameter setting set,” and [g] “determining a set of optimal parameter settings”—improves the efficiency and accuracy of business initiative testing software. The specification confirms the technological improvements over prior approaches -- a solution for optimizing the functionality of predictive analytics software used to analyze large data sets, reducing inconsistencies and increasing

accuracy. ’916 Pat., 17:33-49; 17:33-49, 21:28-30, 22:26-28; FAC, ¶¶30-31. Thus, the inventions provide unconventional solutions to the problems of prior systems and recite an inventive concept. *See Alice*, 134 S.Ct. at 2355.

Indeed, Claims 1 and 18 are similar to the claims held patent eligible by the Federal Circuit in *BASCOM*, where claims were directed to “a content filtering system for filtering content retrieved from an Internet computer network.” 827 F.3d at 1348 (internal quotes omitted). The filtering system was “located on a remote ISP server that ... allow[ed] individual network accounts to customize the filtering of Internet traffic associated with the account.” *Id.* at 1345. While the Federal Circuit found the claims were directed to the abstract idea of content filtration, they agreed with patentee the inventive concept of “installation of a filtering tool at a specific location, remote from end-users, with customizable filter features specific to each end user.” *Id.* at 1350. The claims in *BASCOM* were specifically tied not only to the Internet but also to the specific function of content filtration as well as concrete locations. *Id.*

That the predictive analytics software of the invention may be run on a general-purpose computer does not render it non-inventive as Defendants assert. The invention is a method for determining optimal parameter settings for that predictive analytics software. That is, Claims 1 and 18 are *not* simply directed toward performing an abstract idea (predictive analytics) using generic computer components, but constitute an improvement in the operation of the software running on that computer. This is precisely the type of inventive concept in computer technology that courts have found patent eligible. *BASCOM*, 827 F.3d at 1350.

C. Defendant’s Motion Must be Denied Because the Allegations of the First Amended Complaint Must Be Treated As True.

Even if the Court were not satisfied that the eligibility of the ’916 Patent has been established, the Motion to Dismiss should still be denied because under recent Federal Circuit

precedent, completely ignored by Defendants, it is improper to determine § 101 patent eligibility on a Rule 12(b)(6) motion where patent eligibility depends in part on factual determinations, and the complaint, as here, alleges the technological improvements are not well-understood, routine, or conventional. *Aatrix*, 882 F.3d at 1126-27, 1128-30 (“patentees who adequately allege their claims contain inventive concepts survive a § 101 eligibility analysis under Rule 12(b)(6),” and allegations that the claimed improvement “are not well-understood, routine, or conventional activity” will “prevent dismissal pursuant to Rule 12(b)(6).”); *Berkheimer*, 881 F.3d at 1370 (precluding summary judgment where a genuine issue of material fact exists as to whether the claims perform well-understood, routine, and conventional activities). Such is the case here.

There is, at a minimum, a factual issue as to whether the individual claim elements, including “performing ... a virtual test on a set of virtual test sites... and wherein the virtual test is performed on the virtual test sites using a variation of each parameter setting,” are well understood, routine or conventional. Plaintiff has specifically alleged facts showing the technological improvements of the inventions and that the '916 Patent claims are not well understood, routine or conventional, including the ordered combination of claim elements recited in the claims: “performing ... a virtual test on a set of virtual test sites... and wherein the virtual test is performed on the virtual test sites using a variation of each parameter setting,” “determining a noise value for the first parameter setting set,” and “determining a set of optimal parameter settings.” FAC, ¶¶ 28, 37, 40, 43. Those allegations must be taken as true on a Rule 12(b)(6) motion. *Aatrix*, 882 F.3d at 1126. As such, Defendant’s motion, which disputes the allegations of the FAC by arguing, among other things, that the claims of the '916 Patent can be performed “using routine, well-known-known mathematical relationships and calculations,” (Op. Brief at 14-15), cannot succeed in the face of the plain allegations of the FAC. Indeed, the

primary authority relied upon by Defendants, *OIP*, is premised on a finding that “These processes are well-understood, routine, conventional data-gathering activities that do not make the claims patent eligible.” 788 F.3d at 1364. At a minimum, accepting all alleged facts as true, Defendants have not and cannot establish by clear and convincing evidence that the claimed invention is well understood, routine, or conventional. As a result, their motion must be denied.

D. The Prosecution History Adds Nothing to the Analysis

The Court should reject Defendants’ attempt to rely upon the examiner’s out-of-context comments in a withdrawn rejection. D.I 33, 18-19. As Defendants acknowledge, the patent issued after an initial rejection by the examiner, and the presumption of validity attaches to the patent once it issued, regardless of any subsequent developments in the law. *Microsoft Corp. v. I4I Ltd. Partnership*, 131 S.Ct. 2238, 2243 (2011). The examiner issued the patent based upon long-standing Supreme Court precedent, despite his observations about earlier versions of the claims. The applicant’s amendments of the claims and related discussion caused the examiner to withdraw his rejection and allow the patent to issue. Given the issuance of the patent, there was no need for the applicant to respond to the examiner’s erroneous observations now relied upon by Defendants. The examiner’s preliminary observations are immaterial given the presumption of validity and the discussion above. Moreover, the examiner implicitly retracted his observation that the then-pending claims recited merely a mathematical algorithm, since even under a pre-*Bilski* analysis the examiner should have rejected the amended claims if they were truly a mere mathematical algorithm on a general purpose computer. *Gottschalk v. Benson*, 409 U.S. 63, 71-72 (1972)(cited in *Alice*). Yet despite this, the examiner allowed the amended claims.

VI. CONCLUSION

APT respectfully requests that the Court deny Defendants’ motion to dismiss Count III.

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October 26, 2018

CERTIFICATE OF SERVICE

I hereby certify that on October 26, 2018, I caused the foregoing to be electronically filed with the Clerk of the Court using CM/ECF, which will send notification of such filing to all registered participants.

I further certify that I caused copies of the foregoing document to be served on October 26, 2018, upon the following in the manner indicated:

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